



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,529	02/24/2004	Donald A. Meltzer	202ES048A	1543
37535 7590 04/16/2007 LEGAL DEPARTMENT NOVEON, INC. 9911 BRECKSVILLE ROAD CLEVELAND, OH 44141-3247			EXAMINER SERGENT, RABON A	
			ART UNIT	PAPER NUMBER
			1711	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/16/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/785,529

Applicant(s)

MELTZER ET AL.

Examiner

Rabon Sergeant

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2007.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-42 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-4 and 6-42 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Art Unit: 1711

1. The Election of Species Requirement, set forth within the Office action of December 19, 2005, has been withdrawn. Accordingly, all claimed species have been examined on the merits.
2. Claims 1-4 and 6-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Firstly, with respect to the polyisocyanate component of claim 1, the language, “about 20 carbon atoms”, renders the claims indefinite, because in view of the use of “about”, it cannot be clearly determined exactly what number of carbon atoms is encompassed by the language. Accordingly, it cannot be determined what polyisocyanate species are encompassed by the language.

Secondly, with respect to the co-chain extender component of claims 1 and 35, the language, “from about 1 to about 50 moles of a co-chain extender that ... contains a heteroatom co-chain extender”, renders the claims indefinite for the following reasons. Firstly, the language essentially reads that the chain extender contains a chain extender; therefore, it is unclear how this language is intended to be interpreted. For example, does the language require that a heteroatom chain extender be present with another co-chain extender? Furthermore, it is unclear what meant by heteroatom co-chain extender, since all chain extenders for polyisocyanate-based systems contain heteroatoms.

Thirdly, since the component, a symmetrical chain extender, encompasses mixtures of symmetrical chain extenders (i.e., those having different lengths), as evidenced by claim 3 for example, the relevance and significance of applicants' further limitation concerning different chain length co-chain extenders, relative to the symmetrical chain extender, cannot be

Art Unit: 1711

ascertained. In other words, since the symmetrical chain extender may constitute mixtures of different chain length extenders, the co-chain extender limitation as it pertains to different chain length symmetrical extenders is meaningless.

Fourthly, applicants have not distinguished a “symmetrical chain extender” from symmetrical non-linear extenders or symmetrical heteroatom extenders. For example, applicants have claimed that hydroquinone di(β -hydroxyethyl)ether is a suitable symmetrical chain extender; however, it is a heteroatom chain extender that satisfies applicants’ claimed co-chain extender. Similarly, applicants have claimed that neopentyl glycol, diethylene glycol, and dipropylene glycol are suitable co-chain extenders; however, it is argued that they are symmetrical chain extenders to the same extent as 1,5-pentanediol or 1,3-propanediol, which have been claimed by applicants to be suitable symmetrical chain extenders. Accordingly, applicants have set forth no meaningful claim language that distinguishes one group of chain extender from the other.

Fifthly, despite applicants’ remarks, it remains unclear how a ratio is properly determined by dividing a molar ratio by a percent value.

Lastly, the subject matter of claims 7 and 8 fails to be further limiting; claim 3, from which claims 7 and 8 depend, specifies a range of ratio values that is more narrow than that of claim 7 and that is the same as that of claim 8.

3. Claims 1-4 and 6-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

Art Unit: 1711

relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicants have failed to provide support for the amendments pertaining to the ratio of the molar ratio of co-chain extender to the weight percent of the polyether co-polyol. Applicants have additionally failed to provide an adequate written description as to how the claimed ratio is calculated. Applicants have presented calculations based upon the examples to demonstrate how the ratio is determined, and it is noted that these calculations and the ratio values set forth within the examples are based upon mole percent of the co-chain extender. However, applicants' claim language specifies a ratio based upon a molar ratio of the co-chain extender, and it is noted that a molar ratio is not equivalent to a mole percent. In summation, despite applicants' arguments, applicants have set forth no clear indications or calculations that indicate how the claimed ratio is determined.

Furthermore, as aforementioned within paragraph 2, applicants have set forth no meaningful way of distinguishing symmetric chain extenders from the co-chain extenders. As has been shown within paragraph 2, applicants have set forth individual species that satisfy both of the required chain extender components.

4. Claims 1-4 and 6-42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicants have failed to provide adequate enablement for the calculation of the claimed ratio of the molar ratio of co-chain extender to the weight percent of the polyether co-polyol. Accordingly, the position

Art Unit: 1711

is taken that applicants have failed to provide adequate guidance that would permit the skilled artisan to determine the claimed ratio.

Consonant with the requirement set forth within *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988) (MPEP 2164.01), the undue experimentation factors, considered to be relevant, have been analyzed as follows:

The Breadth of the Claims

Applicants' claims have been considered, and they are drawn to the production of thermoplastic polyurethanes, wherein a ratio of the molar ratio of co-chain extender to the weight percent of polyether co-polyol is required to be within a certain range; however, it is not clear that the specification sets forth sets comparable or analogous language. Therefore, it appears that the claims as set forth lack adequate basis from the specification.

The State of the Prior Art

Applicants' claimed ratio is not conventional within the prior art; therefore, the prior art provides little if any guidance as to how the claimed ratio would be determined.

The Level of One of Ordinary Skill

Given the non-conventional nature of the claimed ratio and the ambiguity as to whether the calculation is to be based upon a molar ratio of co-chain extender or a mole percent of co-chain extender, it is argued that the skilled artisan would not immediately envisage how to calculate the claimed ratio.

The Amount of Direction Provided by the Inventor

Given the aforementioned lack of description of the claimed ratio and the lack of clear guidance as to whether the claimed ratio is to be based upon molar ratios or mole percents, the

Art Unit: 1711

inventors provide essentially no guidance as to how the ratio is actually determined or calculated. The inventors set forth no clear discussion of how one is to determine the claimed ratio based on molar ratio of co-chain extender.

The Existence of Working Examples

The examiner has considered all working examples of the invention set forth within the specification; however, all of these examples employ mole percents in determination of a ratio that does not correspond to the molar ratio-based ratio of the claims. Accordingly, none of the working examples set forth clear determinations of ratios that correspond to the claimed ratio, based upon molar ratio of co-chain extender.

The Quantity of Experimentation Needed to Make or Use the Invention

Based on the Content of the Disclosure

Since it cannot be clearly determined how the ratio is to be determined or if the ratio is actually based upon molar ratios or mole percents, one can only conclude that the quantity of experimentation required would be unduly excessive.

Therefore, in view of the analysis of these factors, the position is taken that one of ordinary skill could not practice the invention without having to resort to undue experimentation.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1711

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-4, 6, 11-18, 23-26, and 31-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Ehrlich et al. ('904).

Patentees disclose thermoplastic polyurethanes, wherein MDI is reacted with a blend of polyester polyol and polyether polyol, wherein the respective polyol components meets those claimed, and a chain extender component, wherein the chain extender component comprises straight chain diols or bis(hydroxyethyl)ethers of hydroquinone and further wherein up to 25 equivalent (molar) percent of the chain extender may be branched chain diols, diethylene glycol, or dipropylene glycol. See abstract; column 2, lines 40+; column 3, lines 6-43; columns 4-6; and column 7, lines 1-50, especially column 3, lines 38-43. Applicants' catalyst amount of claim 36 is disclosed at column 7, lines 47-50. Furthermore, patentees disclose the use of extrusion equipment and conventional processes for producing the thermoplastic polyurethane; therefore, applicants' claimed twin screw extruder and processing times (claims 37 and 39) are considered to be encompassed by patentees. Given the disclosed amounts of polyols and chain extenders,

Art Unit: 1711

applicants' claimed ratio is considered to be met. Furthermore, in view of the fact that patentees disclose thermoplastic polyurethanes produced from reactants that meet those of applicants in amounts that meet those of applicants, the position is taken that patentees inherently disclose thermoplastic polyurethanes that possess applicants' claimed properties. It is logical to expect that compositions derived from the same components and same quantities of components will possess the same properties.


7. Claims 7-10, 19-22, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehrlich et al. ('904) in view of van Der wal et al. ('445) and Mao ('572).

As aforementioned, Ehrlich et al. disclose thermoplastic polyurethanes derived from mixtures of polyester polyol and polyether polyol and mixtures of chain extenders, wherein applicants' claimed ratio of co-chain extender to polyether co-polyol is possessed. However, the primary reference is silent regarding the use of polyoxytetramethylene polyols and the use of the thermoplastic polyurethane to produce coated fabrics and conveyor belts. With respect to the issue of the polyoxytetramethylene polyol, van Der wal et al. disclose thermoplastic polyurethanes derived from blends of polyester diols and polyether diols, wherein a suitable polyether diol is disclosed as being polyoxytetramethylene diol (column 3, lines 67 and 68); therefore, the secondary reference establishes that the use of applicants' claimed diol within an analogous thermoplastic polyurethane was known at the time of invention. Accordingly, it would have been obvious to incorporate such a polyether diol into the composition of the primary reference, so as to arrive at the instant invention. With respect to the issue of the production of coated fabrics and conveyor belts, it is noted that both van Der wal et al. and Mao disclose the production of thermoplastic polyurethanes, derived from blends of polyester polyols

Art Unit: 1711

and polyether polyols, that are considered to be analogous to those of the primary reference, and further that van Der wal et al. disclose the production of conveyor belts and Mao discloses the production of coated fabrics (abstracts). Accordingly, since these applications for analogous thermoplastic polyurethanes were known at the time of invention, the position is taken that it would have been obvious to utilize the thermoplastic polyurethane composition of Ehrlich et al. to produce the instantly claimed coated fabrics and conveyor belts.

Any inquiry concerning this communication should be directed to R. Sergent at telephone number (571) 272-1079.


RABON SERGENT
PRIMARY EXAMINER

R. Sergent
April 10, 2007